CLAIMS

1. Device for the control of a hydraulically actuated clutch (1) of an automatic transmission of a motor vehicle, with a slide-valve mechanism (3) in which a valve piston (4) can move between a first working space (7) which can be pressurized with a control pressure (p_MV) that can be adjusted by means of an electrically operated actuator (9), and a restoring space (10) containing a restoring spring (11) that acts on the said valve piston (4), the valve piston (4) being formed with several piston sections (4A, 4B) which delimit a pressure space (12) which is connected via a line (13) to a clutch space (2) of the clutch (1) and, depending on the position of the valve piston (4), communicates with a pressure supply line (14) that delivers a system pressure (p_sys) or with a pressure-relief line (15), characterized in that as an emergency operation device when the actuator (9) is switched off, it is provided that the pressure in the first working space (7) is maintained during the transition to an emergency operating mode associated with the current operating mode by means of a second piston (16; 17) which communicates via a second working space (18; 19) with the clutch space (2) of the clutch (1) or that of a clutch connected in parallel therewith.

2. Device according to claim 1, characterized in that depending on the position of the valve piston (4), the second working space (18; 19) can be connected via a line (20; 21) to a pressure-relief space (10).

3. Device according to claim 2, characterized in that the second piston (16) can move between the second working space (18) and a spring space (23) containing a restoring spring (24) that acts on the second piston (16), so that by virtue of a defined displacement, the second piston (16) opens a hydraulic connection between a line delivering a clutch pressure (p_K) to the second piston (16) and a line (20) which, depending on the position of the valve piston (4), is connected to the pressure-relief space (10) or, via an OR-valve (28), to the control line (8) leading to the first working space (7).

4. Device according to claim 3, characterized in that the OR-valve connects the first working space (7) to the control pressure (p_MV) present in the

control line (8) or to the clutch pressure (p_K) present in the line (20) that can be connected to the first working space (7) or to the pressure-relief space (10).

5. Device according to claims 3 or 4, characterized in that the OR-valve is made as a ball valve or a slide valve or a ball rocker.

6. Device according to any of claims 3 to 5, characterized in that in a "forward drive" operating mode the second piston (16) opens a hydraulic connection between the line (25, 25B) delivering the clutch pressure (p_K) to the second piston (16) and the line (20) leading to the pressure-relief space (10) or to the first working space (7), and the latter line (20) is opened via the OR-valve (28) to the first working space (7) and blocked off by the valve piston (4) from the pressure-relief space (10), so that when the actuator (9) which adjusts the control pressure (p_MV) is switched off, the valve piston (4) is held in a position corresponding to the current operating mode until the clutch pressure (p_K) supplied to the second piston (16) has become smaller than the restoring pressure acting on the valve piston (4).

7. Device according to claim 2, characterized in that in a "neutral" or "reverse drive" operating mode, when the actuator (9) that adjusts the control pressure (p_MV) is switched off, the valve piston (4) is pushed by its restoring spring (11) to a position corresponding to the "parking" operating mode, such that in the pressure space (12) the valve piston (4) closes off an aperture cross-section of the pressure supply line (14) which delivers the system pressure (p_sys) and opens an aperture cross-section of the pressure-relief line (15), while in the pressure-relief space (10) it opens the aperture cross-section of the line (20, 20A) that can be connected to the first working space (7) or to the pressure-relief space (10), and the second piston (16) adopts an abutment position in the second working space (18).

8. Device according to any of claims 3 to 7, characterized in that the line (25) delivering the clutch pressure (p_K) to the second piston (16) is branched in parallel to form a line branch (25A) opening into the second working space (18) and a line branch (25B) that can be connected to the line (20) leading to the first working space (7) or the pressure-relief space (10).

9. Device according to any of claims 3 to 8, characterized in that the second piston (16) is made with a shift groove (29), into which, after a defined displacement of the second piston (16), open the line (25, 25B) that delivers the clutch pressure (p_K) to the second piston (16) and the line (20) that can be connected to the pressure-relief space (10) or to the first working space (7).

10. Device according to either of claims 1 or 2, characterized in that the first working space (7) is separated from the second working space (19) by the second piston (17).

11. Device according to claim 10, characterized in that the faces of the valve piston (4) and of the second piston (17) facing the first working space (7) are the same size.

12. Device according to either of claims 10 or 11, characterized in that in a "forward drive" operating mode the second piston (17) is in contact with the valve piston (4) and covers an aperture cross-section of the control line (8), and when the actuator (9) which sets the control pressure (p_MV) is switched off, the piston (17) maintains the valve piston (4) in a position corresponding to the current operating mode until the clutch pressure (p_K) present in the second working space (19) becomes smaller than a restoring pressure acting on the valve piston (4).

13. Device according to any of claims 10 to 12, characterized in that in the "neutral" or "reverse drive" operating mode, when the actuator (9) which sets the control pressure (p_MV) is switched off, the valve piston (4) is pushed by its restoring spring (11) to a position corresponding to the "parking" operating mode, such that in the pressure space (12) the valve piston (4) closes an aperture cross-section of the pressure supply line (14) which delivers the system pressure (p_sys) and opens an aperture cross-section of the pressure-relief line (15), while in the pressure-relief space (14) it opens the aperture cross-section of the line (21) leading to the second working space (19), and in the second working space (14) the second piston (17) adopts an abutment position away from the valve piston (4).

14. Device according to any of claims 2 to 13, characterized in that the pressure-relief space is the restoring space (10).

15. Device according to any of claims 1 to 14, characterized in that the second working space (18; 19) is connected to the clutch space (2) of the clutch (1) via a throttle (26).

16. Device according to claim 15, characterized in that the throttle (26) is arranged between the clutch space (2) of the clutch (1) and a branch of the line (20; 21) that can be connected to the pressure-relief space (10).

17. Device according to claims 15 or 16, characterized in that the throttle (26) has a smaller aperture cross-section than the maximum aperture cross-section of the line (20; 21) which can be connected to the pressure-relief space (10) and can be acted upon by the clutch pressure (p_K).